Message

From: Chernoff, Neil [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=E2C8B0A1AA0347F7AB9245A7A5F28DE1-CHERNOFF, NEIL]
Sent: 11/15/2018 6:57:37 PM
To: Cascio, Wayne [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a1bd931ca2f84ea8ac2f4c44538f3589-Cascio, Wayne]
Subject: RE: Ongoing PFAS study of interest

Hi Wayne,

Sorry, it's been hectic as usual and I haven't had a chance to answer… Yes, the town hall was held yesterday. Andy Lindstrom (NERL) was there (Johnsie Lang, from our lab, also intended to be there but had a car accident – she escaped with only a broken hand). Andy said that the general discussion was muted, possibly because the first of the letters with the individual information only began to arrive to participants in the study on the same day. A friend of Johnie's (she was born and raised in Wilmington) sent her a copy of his serum results. He had 9 PFASs identified in his serum, only two of which (PFOA and PFOS) have been studied, and one other, Nafion Byproduct 2, is the one we're working on. I'll bring a copy of the sheet when we meet – there is one other compound that was present at high levels and both Johnsie and Andy agree that based on its structure, **Ex. 5 Deliberative Process (DP)**

Ex. 5 Deliberative Process (DP)

Neil

From: Cascio, Wayne
Sent: Wednesday, November 14, 2018 10:53 AM
To: Chernoff, Neil <Chernoff.Neil@epa.gov>
Subject: Re: Ongoing PFAS study of interest

Neil - Great work! Really important observations. Thanks for sharing this email and ppt. I look forward to learning more when I return. Has the town hall been scheduled? Wayne

Sent from my iPhone

On Nov 14, 2018, at 7:38 AM, Chernoff, Neil <Chernoff.Neil@epa.gov> wrote:

> 11-12-18
>
> Hi Wayne,
>
> I just dropped off some materials with Linda re: a perfluorinated compound (Nafion Byproduct 2) that we've been studying. As you will see below, the research we've done on this previously unstudied compound has considerable potential public interest. We did present our data to Ron and sent him our results that he used to generate a report/email/memo that he presented to EPA personnel in D.C. The rest of this email constitutes the information we just left at your office:
>
> We've been trying to get up with you re: some studies with unusual relevance to people that we're in the process of completing. Since populations in some areas are being exposed to both high levels of PFASs and cyanotoxins during the same periods of time, we have been planning on doing simultaneous exposure studies of PFASs and microcystins, both of which induce similar types of hepatic toxicity by different mechanisms. Johnsie Lang, an ORISE analytical chemist Postdoc we fund, who works in Mark Strynar's lab in NERL, alerted us to the fact that Mark had identified levels of an unstudied PFAS, Nafion Byproduct 2 (NBP2), in the serum of >95% of human serum samples ("n" >400) of people living south of

a plant that manufactures this PFAS. The levels found were in the order of 2-10ng/mL with some higher (1st slide).

- We learned about this 5-6 months ago and immediately began a study to evaluate the toxicology of NBP2 since we assumed that an important question to people receiving this news would be what this could mean for their health.
- We analyzed water from a stream near the manufacturing plant (2nd slide) and found that the three major components were the PFASs PFMOAA, GenX, and NBP2, with the major portion being PFMOAA and NBP2 being present in trace amounts.
- Animals (mice) were dosed by gavage with concentrated water samples for 7 consecutive days. At the end of that time, animals were euthanized, and liver tissue and serum tested for levels of the PFASs. The PFMOAA did not appear in any tissue or serum levels. The GenX was present in both liver and serum with the major portion being in the serum. The NBP2 was highly concentrated in the liver (≈40% of the total dose administered during the dosing) and was also present in large quantities in the serum (≈20% of the total dose).
- The next studies used semi-purified NBP2 administered in three dose levels, 0.3, 3.0, and 6.0 mg/kg/day for seven days. Liver weights and Liver/Body weight ratios were much greater in the 3.0 and 6.0 mg/kg/day dose groups but not significantly different in the 0.3 mg/kg/day groups (3rd slide).
- Comparing the levels of NBP2 in human serum samples to those in the mice on study, the lowest dose level (0.3 mg/kg/day) had levels in the range of 2-10 µg/mL so there is a "safety factor" in the order of 1000 (4th slide).

There will be a "town hall" meeting where the epidemiologist from NCSU who headed the study where the serum was analyzed by Mark will discuss the findings with the public after all participants in the study will have received their serum findings. We were told that she would be able to state that the EPA is currently studying the compound's potential effects in laboratory animals, and she will do so.
We are completing the paper – currently waiting on some histopathology slides looking at liver tissues – and then it will be submitted to a journal that publishes relatively rapidly.

Neil

<NBP2 - slides X4 11-12-18.pptx>